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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,858	03/05/2002	Go Inoue	Q68703	8358

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EXAMINER	
SHIPPEN, MICHAEL L	
ART UNIT	**PAPER NUMBER**
1621	

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/087,858	INOUE ET AL.	
	Examiner	Art Unit	
	MICHAEL L. SHIPPEN	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 11-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 11-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to applicants' amendment of August 10, 2004, which was not before the examiner before the mailing of the last Office action of August 10, 2004. Since the amendment was not considered in the previous Office action, the previous Office action of August 10, 2004 and the finality thereof are withdrawn. The present Office action is nonfinal.

Claim Objections

Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Parent claim 5 already requires the level of purity as recited in claim 6.

Applicant is advised that should claim 20 or 21, claim 25 or 26, or claim 30 or 31 be found allowable, the other claim will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). These respective sets of claims depend from claims 5 and 6. As indicated above, claim 6 does not further limit claim 5 and as such the respective dependent claims amount to duplicates.

Claim Rejections - 35 USC § 103

Claims 1-8 and 11-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5,670,702 and USP 5,981,818 in view of EP 68,785 optionally in view of USP 4,956,493 and admitted prior art[1]. USP 5,670,702 and USP 5,981,818 teach that methyl t-butyl ether may be decomposed to isobutylene and methanol. The isobutylene is oxidized and subsequently esterified with methanol. USP 5,670,702 differs from the claimed process in that the ether decomposition process is not actually exemplified, note line 60 of column 3 to line 12 of column 4 and Example 2. USP 5,981,818 differs from the claimed process in that the methanol obtained in the decomposition of the ether is not identified as the methanol used in the esterification step, note lines 49-66 of column 22.

EP 68,785 teaches the ether decomposition steps and the isobutylene and methanol recovery. The EP specifically states the products are suitable for used in the preparation of methacrylic acid, note the last full paragraph of page 1. It is considered obvious for one to use the decomposition method and product recovery method of the EP in the process of USP 5,670,702 and USP 5,981,818 since one would usually use known methods to carry out necessary process steps rather than use unknown methods.

As to USP 5,918,818 silence regarding the source of the methanol used in the esterification, it would be an obvious economical and environmental expedient to the

[1] The admitted prior art is that the processes to oxidize isobutylene in the vapor phase are known, see the first full paragraph of page 14 of the specification.

use the methanol generated in the integrated process. Moreover, it is clear from the prior art that that methyl methacrylate may be prepared from methanol. There is no limitation on the source of the methanol. The method of methanol preparation recited in the claims is well known. No patentable significance is seen in reciting a known method of methanol preparation to be used in a known method of methyl methacrylate preparation.

Some of the claims have been further amended to identify components and purity of the methanol reactant, which are not specified in the prior art. As to the recitation in some of the claims of the presence of the presence of other components such as water, t-butanol or methyl t-butyl ether, this is not seen to distinguish the claims from the prior art. These are inherent impurities in the methanol obtain from the decomposition of methyl t-butyl ether. The recitation of these inherent impurities does not describe methanol that is any different from the methanol obtained in the prior art decomposition process. As to the recitation in some of the claims of the purity of the methanol, this is not seen to lend patentability to the claims. First, it would appear that the methanol obtained by the prior art method is at least as pure as the lower limits recited in the claims. Second, since impurities in the reactants would be expected to be carried forward into the product, one would be motivated to use a more pure reactant in the expectation of obtaining a product containing less containments carried forward from the starting materials.

As to the claims that require the oxidation to be carried out in the vapor phase, this is well known as admitted by applicants, see footnote 1. This is further evidenced

by USP 4,956,493, which teaches that this is in fact a known method. Moreover, this appears to be the method suggested by USP 5,981,818, note lines 49-58 of column 22. No patentable significance is seen in reciting known oxidation process steps.

Applicants' discussion of the methanol impurities on page 2 of the specification is noted, but not found persuasive. First, the discussion therein is a general reference to unidentified prior art processes and as such its relevance to the instant prior art is not apparent. Moreover, if there is a disadvantage of one source of methanol over another, this would be a reason why one may be motivated to choose a source not having this disadvantage. Furthermore, it is noted that even applicants' source of methanol requires a number of purification steps as shown by the instant examples. Nor do the claims exclude the use of a number of purification steps. Second, it is clear from the prior art of record that the methanol produced in the decomposition of MTBE is of value commercially and is to be used in some manner. Its use in the preparation of methyl methacrylate is well known as shown by the art of record. No patentable significant is seen in using this known product in a known manner. Third, the use of the most cost effective method of production is always a consideration is any manufacturing process. The determination of the most cost effective method would necessarily take into consideration of the cost of different sources of materials. Such a determination of economics of any manufacturing process is accomplished by routine cost analysis.

Conclusion

The remaining references are cited as of interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Michael L. Shippen** whose telephone number is **(571) 272-0647**. The Examiner's normal tour of duty is 7:30 AM to 4:00 PM. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is **(571) 272-1600**. The official group FAX machine number is **703-872-9306**.

MShippen
October 12, 2004

MICHAEL L. SHIPPEN
PRIMARY EXAMINER
ART UNIT 1621